

REMARKS

By the foregoing Amendment, Claim 1 has been amended. Favorable consideration of the application is respectfully requested.

Claims 1, 5, 15, and 16 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 1,758,628 (Thurm), to which the Examiner referred by the name of the assignee, Baker. Claim 1 has been amended to recite "the firing portion comprises a plurality of apertures each having an inlet side and an outlet side, one of the inlet and outlet sides being relatively narrower and the other of the inlet and outlet sides being relatively wider with respect to each other." Support for the amendment can be found in the specification at page 4, lines 26-29, page 5, lines 2-6, page 6, lines 4-15, and Figures 3-4, for example. It is respectfully submitted that Thurm discloses apertures having inlet and outlet sides defined by check bars 45 and the bar 50, so that the apertures in Thurm would have the same diameter at the inlet side and outlet side. Claims 5, 15 and 16 depend from Claim 1.

As is discussed in the specification at page 1, lines 15-17, and page 6, lines 4-15, Applicant's device is a burner head which enables fuel in gaseous form to travel through triangular elongate elements and combust on the far side. The claimed structure has the advantages of producing a predictable and stable flame with a low risk of flashback. It is the form of the passages which result from the claimed structure that bestow these advantages upon the claimed device. It is considered significant that in the present invention wedge wire of triangular cross section is used to provide fuel flow passages through the burner head which either narrow down from the inside to the outside, or

widen out from the inside to the outside, which Thurm does not teach, disclose or suggest. It is therefore respectfully submitted that Claims 1, 5, 15 and 16 are novel and inventive over Thurm, and that the rejection of Claims 1, 5, 15 and 16 on the grounds of anticipation by Thurm should be withdrawn.

Claims 3, 4, and 6-14 were rejected under 35 U.S.C. §103(a) as unpatentable over Thurm in view of Nishida et al. As noted above, Claim 1 has been amended to recite "the firing portion comprises a plurality of apertures each having an inlet side and an outlet side, one of the inlet and outlet sides being relatively narrower and the other of the inlet and outlet sides being relatively wider with respect to each other." Nishida et al. also discloses structures in which the gas flow apertures would have the same diameter at the inlet side and outlet side. It is respectfully submitted that Thurm and Nishida et al. fail to disclose, teach or suggest a plurality of apertures with one of the inlet and outlet sides being relatively narrower and the other of the inlet and outlet sides being relatively wider, as is claimed, and that Claims 3, 4 and 6-14 are novel and inventive over Thurm and Nishida et al., taken individually or in combination, as discussed above. It is therefore respectfully submitted that the rejection of Claims 3, 4 and 6-14 on the grounds of obviousness from Thurm in view of Nishida et al. should be withdrawn.

Applicant wishes to thank the Examiner for the telephone interview with the undersigned on May 22, 2006, in which the Examiner indicated that the amendment of Claim 1 appeared to overcome the art applied. However, the Examiner also requested that Applicant address the applicability of the configuration of inlets and outlets in U. S. Patent No. 5,547,372 (Smith), and particularly Fig. 2 of Smith, which was submitted in

an information disclosure statement. Fig. 2 of Smith shows the configuration of inlet portions 30 and outlet slots 17 of the flamestrip 13. As is disclosed at column 2, line 54, to column 3, line 45, the elongate slots 17 serve as outlets for a fuel gas/air premixture for ignition, and have inlet portions 30 which converge to ends 30a which lead to the outlet slots 17, having an outlet width W. The width of the inlet portions is not disclosed, but it appears from Fig. 2 that the width of the inlet portions 30 is substantially the same as the width W of the outlet slots. As is discussed in Smith at column 1, lines 40-67, Smith teaches that the dimensions of the outlet slots that open stepwise stabilize a flame, that the lands and the outer ends of the slot outlet portions provide regions where the flame is stable, and that such an arrangement substantially reduces or eliminates a resonance tendency of the premixed burner.

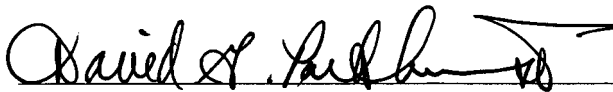
In the present invention, the configuration of the inlets and outlets formed by the wedge wire produces a predictable and stable flame with a low risk of flashback, but is much more uniform than the stepped configuration in Smith, and there are almost no dead areas at the apex of the wedge wires, which promotes greater flame uniformity along the burner. The burner head of the present invention is not limited to a gas/air premix as in Smith, but can be used on neat gases and other mixtures. As is recited in Claims 5, 6 and 7, in a preferred aspect the firing portion may be tubular, so that combustion air may be applied externally around the burner head tube in any direction and throughout any part of its 360° circumference, since it is not flat but circular, and can be masked off to form flame profiles of any width or length only limited by the rate

injected into the burner head tube ends. The present invention is also simpler and less costly to manufacture than in the prior art.

In light of the foregoing remarks, it is respectfully submitted that the application should now be in condition for allowance, and favorable consideration of the application is respectfully requested.

Respectfully submitted,

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